

WEST COAST VANCOUVER ISLAND

# GOOSE BARNACLE

Experimental Fishery Guidelines & Harvest Plan

Draft; March 31, 2005

*West Coast Vancouver Island Aquatic Management Board*

*Fisheries and Oceans Canada*

*BC Ministry of Agriculture, Fisheries, and Food.*

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## 1 Contacts for Further Information

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Gold River Field Office	(250) 283-9075
Campbell River Field Office (Area 26)	(250) 286-5852

**BC Ministry of Agriculture, Food, and Fisheries**

Industry Development Officer, Seafood Development Branch	Dennis Chalmers	(250) 356-2238
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**2 Glossary/Acronyms**

- AMB Nuu-chah-nulth-aht/West Coast Vancouver Island Aquatic Management Board
- NTC AMA Nuu-chah-nulth West Coast Vancouver Island Aquatic Management Association
- Area As in Section 2 of the Pacific Management Area Regulations or see Management Areas – Pacific Region on the internet at: <http://www.pac.dfo-mpo.gc.ca/ops/fm/Areas/areamap.htm>.
- By-catch Incidental or unintentional catch of non-target stocks or species.
- DFO Department of Fisheries and Oceans (Fisheries and Oceans Canada)
- DMC Data Management Centre, designated to manage harvest data.
- Fishing hail That report required by licence condition as notification prior to commencement of fishing.
- Fishing hail number That unique number which is issued by the Designated Service Bureau upon completion of a fishing hail as confirmation of making a fishing hail.
- Fishing trip That period when the vessel departs from a dock to engage in fishing until fishing ceases and goose barnacles are offloaded.
- Goose gun harvesting tool used by goose barnacle harvesters, consists of a sharpened car leaf spring welded to a heavy steel bar
- Harvested Referring to fish, including goose barnacles, caught by any means.
- Landed or landing The transfer of catch from a licensed vessel to land (including docks and wharves).

- Landing hail That report required by licence condition as notification prior to landing or offloading catch at the end of a fishing trip.
- Landing hail That unique number which is issued by the Designated Service Bureau upon completion of a landing hail as confirmation of making a landing hail.
- Offloaded The landing or removal of catch from the licensed individual's vessel.
- NTC Nuu-chah-nulth Tribal Council
- Ts'a7inwa goose barnacle (Nuu-chah-nulth language)
- User All users of the fisheries resources including First Nations, recreational and commercial fishers, crew members or charter services, and other parties with an interest in the fishery.
- WCB British Columbia Workers Compensation Board
- WCGBHA West Coast Goose Barnacle Harvesters Association

### **3 Internet Sites**

West Coast Vancouver Island Aquatic Management Board

[www.westcoastaquatic.ca](http://www.westcoastaquatic.ca)

*Fisheries and Oceans Canada*

Pacific Region home page:

[www.pac.dfo-mpo.gc.ca](http://www.pac.dfo-mpo.gc.ca)

Fisheries management home page:

[www.pac.dfo-mpo.gc.ca/ops/fm/](http://www.pac.dfo-mpo.gc.ca/ops/fm/)

Shellfish management home page:

[http://www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/default\\_e.htm](http://www.pac.dfo-mpo.gc.ca/ops/fm/shellfish/default_e.htm)

## **4 Introduction**

### ***4.1 History of the Commercial Fishery***

The intertidal fishery for goose barnacles grew rapidly from its beginning in 1985 and peaked in 1988 when 467 Z6 licences were issued and reported landings by Z6 licence holders were 49 tonnes. Since 1989 interest in this fishery has fluctuated and in the last complete year of this fishery (1998) 37 licences were issued, with 9 licence holders recorded as selling product to buyers. Accordingly, the annual landings of goose barnacles declined and were approximately 10 tonnes in 1997, with a total landed value of approximately \$112,000. In May 1999, the commercial fishery was closed by Fisheries and Oceans Canada (DFO), who cited concerns about poor catch reporting and impacts to the rocky intertidal habitat where goose barnacles grow. Since closure, two experimental

harvests have taken place in conjunction with detailed stock and habitat assessment projects.

Goose barnacles have a relatively high value to fisherman, but the small niche market that demands live, high quality product limits the fishery. Declines in the fishery in the late 1990s are related to markets and small numbers of experienced harvesters rather than product availability. It is estimated that less than 10% of the WCVI total goose barnacle stock is available to the fishery due to inaccessible harvest areas, unsuitable size and quality to the market, and weather conditions which limit access to harvestable product.

Largely due to product availability, quality concerns, and proximity to markets, the goose barnacle fishery has been carried out mainly along the west coast of Vancouver Island in Areas 23, 24, and 26. Some harvest occurred in north coast areas prior to 1994.

#### ***4.2 First Nations Fishery***

First Nations have harvested **ts'a7inwa** (goose barnacle) for thousands of years and maintain active aboriginal fisheries today. Home-use harvesting takes place at many exposed, rocky intertidal sites including some sites of commercial interest, but unlike commercial harvestings is generally confined to summer months. Home-use harvesting does not target barnacles of a particular size and shape as does the commercial fishery (B. Keitlah, pers. comm. July 2003).

#### ***4.3 Past Experimental Harvests***

Since the closure of the commercial goose barnacle fishery on May 30, 1999, two experimental harvests have taken place. These fisheries were authorized and licenced by the Department of Fisheries and Oceans after stock assessment and habitat monitoring studies had begun in Barkley Sound, Clayoquot Sound, and Kyuquot Sound. The experimental harvests were successful in achieving the following objectives:

- Providing DFO staff with information about harvesting practices
- Using goose barnacles that were removed from the rocky intertidal ecosystem for stock assessment and habitat studies
- Helping pay for fishery monitoring costs
- Providing income for goose barnacle harvesters
- Maintaining connections with European markets

Dates, landings, and licencees in each experimental fishery are described in Table 1.

Table 1. Dates, licencees, and harvest from experimental goose barnacle harvests on the west coast of Vancouver Island.

Experimental Harvest Dates	Licensees	Total Harvest from WCVI (lbs)
11 Sept 2000 – 31 Dec 2000	West Coast Goose Barnacle Harvesters Association,	3939

	Canadian Goose Barnacle Harvesters Co-operative	
1 Dec 2001 – 21 Mar 2002	West Coast Goose Barnacle Harvesters Association, Ka:'yu:'k't'h'/Che:k'tles&et'h' First Nations, Hesquiaht First Nation (no harvest)	2951

## **5 Licensing**

Goose barnacle fishery management and harvesting activities are coordinated with a variety of government agencies in the three harvest areas; Local DFO offices, such as when harvesters have hailed-out, Provincial and Federal Parks, the Coast Guard, and First Nation's Fishery Guardians.

Experimental licences to Kyuquot First Nation and to the West Coast Goose Barnacle Harvesters Association started March 31<sup>st</sup> 2004 and are renewed every 6 months. Individual harvesters (registered as being active) are/will be named on the licences.

### ***5.1 Number of harvest opportunities in the fishery***

To conduct the experimental fishery in a cautious manner, a total of 24 harvest opportunities are available:

Licence Area A, NW Barkley Sound: 6

Licence Area B, Clayoquot Sound: 6

Licence Area C, Kyuquot/Checleset: 12

The maximum number of harvest opportunities is defined as the maximum number of harvesters who are allowed to fish in one low tide event.

### ***5.2 First Nations participation***

At least 50% of the experimental fishery's participants will be aboriginal.

### ***5.3 Transferability***

Experimental fishing licences are non-transferable.

### ***5.4 Licence category***

A scientific licence will be issued to harvest goose barnacles. Vessels used to transport harvesters and product from this fishery do not require a licence.

### ***5.5 Species***

Goose Barnacles, *Pollicipes polymerus*.

### ***5.6 Gear***

Intertidal hand picking with modified car leaf spring hand tool, commonly called "goose gun". Mechanical devices prohibited. Collection by diving not permitted.

### **5.7 Allocation**

Effort in the fishery is limited by the number of harvest opportunities in each area, weather, tides, accessibility, and other factors. There are no intra- or inter- sectoral allocations.

### **5.8 Catch and fishing data**

It is a Condition of Licence and the responsibility of the licence holder to ensure that harvest information is received by Fisheries and Oceans Canada and meets the conditions outlined below. Harvesters not using validation services provided by authorized companies must use monitors/validators that are approved by Fisheries and Oceans Canada. Though currently formal certification is not required for harvest monitors, it may be considered and/or developed.

### **5.9 Harvest Log Data**

All harvesters will be responsible for maintaining accurate log books which include information on date of harvest, catch sizes, harvest locations, and landing port. All trips that receive hail out numbers will be reported in the log book, even if no harvest is made.

Harvesters will provide the complete log book for inspection and validation at the time of landing to the dockside monitor, where the monitor will remove two copies from the log book (pink and yellow) and leave the original (white) in the log book.

The catch reporting and validation procedures are described in Appendix 4.

Service bureaus may be contracted to provide Validation and Harvest Log coding and keypunch service, including the electronic capture of harvest location data into the Shellfish Data Unit Geographic Information System (GIS). For alternatives to harvest data provision through a service bureau, the requirements and acceptable data formats for supplying harvest log, chart, and electronic data in a format that meets the Conditions of Licence.

### **5.10 Confidentiality of Harvest Data**

Harvest data, including fishing location data supplied though lat./long. coordinates, loran or chart records, collected under the Validation and Harvest Logbooks for Shellfish Fisheries programs, are collected for use by Fisheries and Oceans Canada in the proper assessment, management, and control of the fishery. Upon receipt by DFO of harvest data and/or fishing location information supplied by the harvester in accordance with conditions of licence, Section 20(1)(b) of the *Access to Information Act* prevents DFO from disclosing to a third party, records containing financial, commercial, scientific, or technical information that is confidential information. Further, Section 20(1)(b) of the *Act*

prevents DFO from giving out information, the disclosure of which could reasonably be expected to result in material financial loss or could reasonably be expected to prejudice the competitive position of the harvester.

### **5.11 On Grounds Monitoring**

Random Harvest Audits will be conducted by On Grounds Monitors, which will be arranged by Dockside Monitors at the time of haul out. Dockside Monitors will plan and make in-season adjustments to achieve Harvest Audits for 25% of harvest activities.

## **6 Experimental Fishery Harvest Guidelines.**

### **By-catch and discard**

Because goose barnacles are harvested live from the substrate they live on, by-catch (mostly acorn barnacles, *Balanus glandula*; thatched barnacles, *Semibalanus cariosus*; California sea mussels, *Mytilus californianus*; and non marketable goose barnacles) occurs. The majority of by-catch is cleaned and discarded at the harvest site, with further cleaning and discarding taking place at the landing site.

Reasons to minimize by-catch and discard are:

1. To lessen damage to the exposed rocky intertidal ecosystem;
2. To provide more substrate for marketable goose barnacles;
3. To ensure sustainable harvest practices.

Harvesters will reduce by-catch and discard by following these harvest practices:

- Harvesting only marketable barnacles (“singles” or small clumps);
- Targeting marketable barnacles with harvesting tool
- Examining targeted barnacles *before* fully lifting them from the substrate and if deemed unmarketable, carefully pushing clump back into substrate;
- Cleaning harvest of by-catch and non-marketable barnacles at the harvest site;
- Providing supervision of new harvesters;
- Recording and providing accurate and timely data on by-catch and discard (with appropriate assistance from fishery monitors).

By-catch and discard will be monitored through random audits totaling 25% of harvest activities (see Appendix 4).

## **7 Safety**

### **7.1 Boat safety**

Under the Canada Shipping Act and the Small Fishing Vessel Inspection Regulations, Transport Canada is responsible for the licensing of commercial vessels and developing regulations for the safe operation of these vessels.

While Transport Canada regulates commercial operators to verify they meet all applicable safety standards and regulations, safety is a shared responsibility. Goose barnacle harvesters are expected to maintain their vessels to Small Fishing Vessel Regulations (also see section of Goose Barnacle Harvesting and Safety Manual below). Transport Canada maintains the authority to enforce these regulations.

### **7.2 Pertinent safety publications:**

Small Fishing Vessel Safety Manual  
Publication Number T31-67/1993F  
©1993  
*Updated manual to be released 2003*

#### **CANADA SHIPPING ACT**

Small Fishing Vessel Inspection Regulations:

REGULATIONS RESPECTING THE CONSTRUCTION AND INSPECTION OF  
FISHING VESSELS NOT EXCEEDING 24.4 m IN LENGTH THAT DO NOT  
EXCEED 150 TONS, GROSS TONNAGE

[www.tc.gc.ca/acts-regulations/GENERAL/C/CSA/regulations/070/csa075/csa75.html](http://www.tc.gc.ca/acts-regulations/GENERAL/C/CSA/regulations/070/csa075/csa75.html)

### **7.3 Workers Compensation Board**

The British Columbia Workers Compensation Board (WCB) is the legal authority to carry out the act and the policies in the Workers Compensation Act, including the promotion of occupational health and safety and the protection of workers and other persons present at the workplaces from work-related risks to their health, safety and well-being.

Coverage for commercial fishers is provided by Section 4 of the *Workers Compensation Act* and the Fishing Industry Regulations made under it.

WCB and Transport Canada have a Memorandum of Understanding respecting operational safety and occupational safety and health jurisdiction on fishing vessels in the Province of BC.

### **7.4 Goose Barnacle Vessel and Harvesting Safety Guidelines**

Harvesters recognize their responsibilities in ensuring the safety of them and their crew. The West Coast Goose Barnacle Harvesters Association and the Ka:'yu:'k't'h'/Che:k'tles&et'h' First Nations have developed the Goose Barnacle Vessel and Harvesting Safety Guidelines (See Appendix 2 - Safety Guidelines).

### **7.5 Education**

On going education and awareness of goose barnacle harvesters will occur through distribution of safety publications and updates of new safety guidelines or regulations.

## **8 Specific Management Objectives**

### **8.1 *The experimental fishery will be guided by the following objectives:***

- To ensure conservation and protection of goose barnacle populations, the rocky intertidal habitat, and the community of plant and animal species in which goose barnacles occur.
- To apply management principles in a risk averse and precautionary manner based on the best scientific and local knowledge available, ensuring benefits for future generations.
- To meet and respect obligations regarding aboriginal fisheries for food, social, and ceremonial purposes.
- To develop a sustainable experimental goose barnacle fishery through partnership and co-management arrangements with stakeholders to share in accountable management, transparent and open decision-making, responsibilities, costs, and benefits.
- To explore adaptive management options for local management.
- To develop fishing plans and cooperative research programs to contribute to improving the knowledge base and understanding of goose barnacle resources.
- To consider health and safety in the development and implementation of management.

### **8.2 *Financial Responsibilities***

The direct costs of the experimental harvest, including On Grounds Monitors, Dockside Monitors, data management, assessment, and review will be borne by harvesters and the AMA.

### **8.3 *Performance Review***

Performance reviews are used as tools to evaluate the purpose, objectives, and achievements of a fishery. Performance reviews for the goose barnacle experimental harvest will be facilitated by the AMB. The experimental goose barnacle fishery will be subject to interim performance reviews at the expiration date of any scientific licences issued during the timeframe of this plan. A final review will be conducted at the expiration of this plan. Results of reviews will be used to adapt the management framework in each major fishing area. A framework will be developed in the first year of the experimental harvest based on experience during the harvest. An initial draft framework is provided in Appendix 3.

## 8.4 *Aboriginal Fishing Plan*

The importance of fish, including invertebrates, to Nuu-chah-nulth First Nations is recognized by all commercial goose barnacle harvesters. Subject to conservation, Nuu-chah-nulth access to goose barnacles for food, social, and ceremonial purposes has priority over commercial – including experimental fisheries – and recreational user groups.

DFO will consult with Nuu-chah-nulth First Nations to determine what commercial and recreational accesses should be. In some cases, an area may be closed to certain fishing except that by Nuu-chah-nulth First Nations. These closures may be seasonal or for specified times. Whenever possible, these closures will be identified in the experimental or commercial fishing plan (as below under 9.2 Closed Areas). In-season closures may be required.

## 8.5 *Recreational Fishing Plan*

The Department will continue to provide opportunities for a recreational fishery for Goose Barnacles. Limits and other information concerning the recreational fishery for Goose Barnacles is published regularly in the British Columbia Tidal Waters Sport Fishing Guide.

# 9 **Experimental Harvest Plan**

## 9.1 *Assessment and Research*

### **Stock assessment**

Prior to the closure of the commercial goose barnacle fishery, no goose barnacle stock assessment had taken place. Like many other invertebrate fisheries, a comprehensive stock assessment approach that estimates abundance of every harvested bed is not appropriate in this fishery. However, DFO staff have developed a stock assessment technique (Draft Protocol for Goose Barnacle Abundance and Biomass Surveys, Ray Lauzier, 2000) that will be used at designated index and control sites to monitor goose barnacle harvest and help assess the impact of the fishery in the exposed rocky intertidal ecosystem. This assessment, with appropriate management tools and controls will help ensure conservation and long-term sustainability of the goose barnacle resource.

Table 2. Stock assessment control and index sites.

Statistical Area	Type of stock assessment site*	General description of habitat**	Name and specific location
23	Control	Slightly protected, high surge area	Southern of two rocks at southeast corner of George Fraser Island (one large bed)
23	Control	Exposed	Rocky point on

			Vancouver Island near Food Islets (one bed)
23	Index	One exposed bed and two more protected beds	Northern of two rocks at southeast corner of George Fraser Island (three small beds)
23	Index	One exposed bed and one more protected bed	Food Islets (larger islet, two beds)
24	Control	Protected but high tidal surge, good access in poor weather	Father Charles Rock (research permit from BC Parks required) (one or two beds)
24	Control	Exposed	La Croix Middle Outside (research permit from BC Parks required) (one bed)
24	Index	Exposed	Lennard Island NW (one bed)
24	Index	Slightly protected, good access in poor weather	Thorn Reef (one bed)
26	Control	Exposed	Kate Rock North
26	Control	Less productive area, better access in poor weather	Mission control
26	Index	Productive, high surge area with quick replacement	Roll boat rock
26	Index	Less productive area, better access in poor weather	Mission Index (North end of previously surveyed rock in Nicolaye channel)

### Local Ecological Knowledge Surveys and Harvest Audits

In addition to the above Stock Assessments, Local Ecological Knowledge surveys (please see attached: LEK Survey Form) were initially conducted at control and, index sites and harvest sites. These surveys are conducted by interviews between harvesters and auditors

to determine site openings and closures. They are revised over time based on harvest patterns and the information that is gathered.

Sites without LEK surveys are closed to harvesting until surveys are complete.

### Local Ecological Knowledge Survey Form

Local Ecological Knowledge Survey Sheet		
Date		
Site Area and ID#		
Site name		
Photos		
Harvesters' Names		
UTM		
On average, how many times a year do <i>you</i> visit this rock or group of rocks?		
With how many other crew members?		
On average, how many guys use this rock in the last couple years of harvesting ( <i>out of the 8 or so regular harvesters in the last few years of the fishery</i> )?		
How many harvest-days do all harvesters combined get out of this rock? ( <i>Upper range</i> )		
Average Harvester Days		
What's your "guesstimate" of percentage of harvestable product ( <i>on the rock</i> )		

On average, how much product would <u>you</u> take from this rock per visit?		
How much harvest per visit for other crew members?		
What % of marketable barnacles do you take from;		
What is growing on acorn vs mussel		
Mussels		
How many Lbs would you estimate are available <u>now</u> on this rock?		
How often do you take marketable barnacles right off the rock?		
What percentage of discard by weight would you expect at this rock?		
On average, how long would it take for the rock to recover from harvest? ( <i>yr</i> )		
On a scale of 1 to 10, how likely is this rock to be damaged from improper harvesting? How delicate do you have to be? ( <i>1: not very delicate, 10: very delicate</i> )		
On a scale of 1 to 10, how susceptible is this rock to wave and log damage? ( <i>1: not susceptible, 10: extremely susceptible</i> )		
On a scale of 1 to 10, how would you rate the overall quality of harvestable barnacles ( <i>1 poor, 10 is excellent</i> )		
On a scale of 1 to 10, how important is this rock in your overall income in a year? ( <i>1: not important, 10: very important, a good part of my income</i> )		

Out of ten random potential fishing days, how many days is this accessible?		
On a scale of 1 to 10, assuming you get on this rock, how well will you do? (1:excellent 10:poor)		
On a scale of 1 to 10, how risky is it to harvest on this rock? (1: no risk, 10: upper limit of risk)		
What's the quality of anchorage and general safety, on a scale of 1 to 10 (1: not very safe, 10: very safe)		
Is there anything unique about this rock or other info you have?		

## **9.2 Site specific harvest thresholds & Stock regeneration**

Stock regeneration is dependent on the particular site. Initial LEK estimates of site regeneration will be checked against new audit data to determine closures/openings. Estimates will be verified over time according to further LEK and harvest data and comparisons with biological assessments.

Site/rock closures are triggered when 85% of the amount of stock determined to be there during an LEK have been harvested.

Harvester recommendations are also applied to decisions to open and close certain rocks. Some for example are less exposed and are held in reserve for the rougher conditions of fall and winter. Harvest trigger closure rules and the need to re-LEK these before opening still apply.

## **9.3 GIS**

A Geographical Information System (GIS) will be used as a primary data collection, storage, and reporting tool. Existing harvest sites have been entered, using GPS, and named in a GIS.

## **9.4 Other research**

A research program will be developed during this phase of experimental harvesting to address some or all of the research questions outlined below, subject to available funding.

- Question #1: Long term monitoring (using photomonitoring techniques) of previously harvested patches to examine succession (patterns of recolonization)
- Question #2: Tagging experiments to examine individual growth of goose barnacles
- Question #3: Monitoring of live, harvested barnacles to determine changes in texture, size, and shape of barnacles that are stored before sale (in effort to reduce by-catch of unmarketable barnacles)

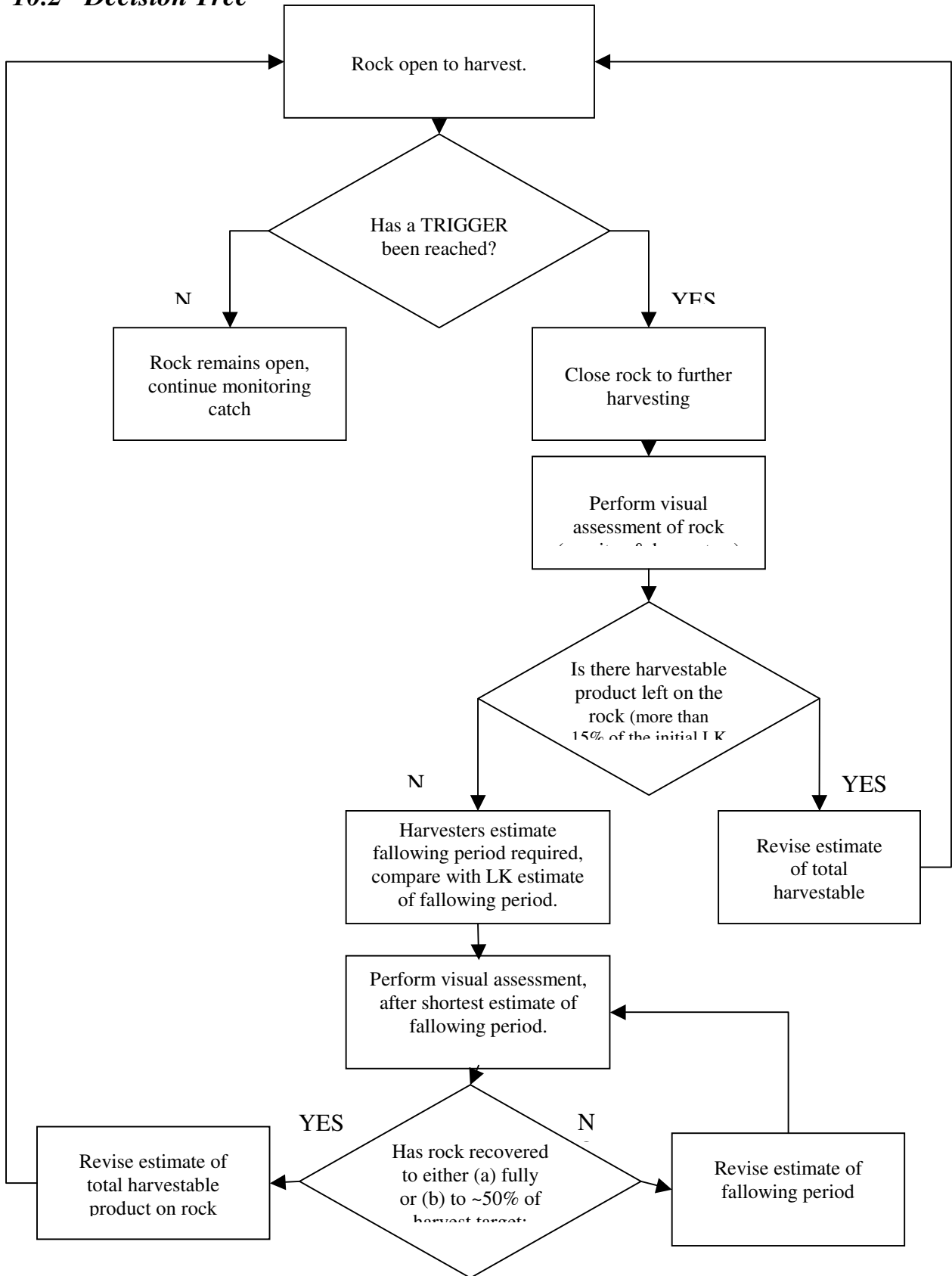
## **10 Management Decision Rules**

### ***10.1 In-season management structure/process***

The management structure includes the WCVI Aquatic Management Board as the oversight body, the Westcoast Aquatic Management Association (AMA) as the project management body, Westcoast Goose Barnacle Harvesters Association (WGBHA) and Kyuquot/Checleseth First Nations as the licencees, and the Department of Fisheries and Oceans (DFO) as the legislative authority. The Aquatic Management Board is updated every two months on progress and issues in the experimental harvest. Semi-annual or annual meetings are held between harvesters, AMA, the AMB, the Province, and DFO to keep all parties updated on revisions of guidelines and operational protocols and progress of the fishery. Regular meetings are held by licencees with AMA to address operational and development issues.

The Decision Tree on the next page describes the series of steps that are taken to open or close a rock/site. If the database indicates that a sites closure trigger has been reached it is closed until a new LEK survey is completed. The new LEK must indicate that more than 15% of the original LEK is present at that site before it can re-open to harvesting.

10.2 Decision Tree



## **11 Experimental Harvest Areas**

The maps that are appended to this document are also distributed to harvesters. They graphically indicate information that is contained in this section. The maps are accompanied with tables matched by area, that indicate site ID numbers (including stock assessment control and index sites), lat- long co-ordinates and closure boundaries. Lists of open rock/sites that are periodically updated according to closure triggers or LEK assessments are also provided .

## **12 Open Areas**

The experimental fishery Licence Areas A, B, and C will be conducted within the Pacific Management Fishery Areas as outlined below:

### ***12.1 Licence Area A:***

NW Barkley Sound

DFO Statistical areas 23-9; 23-10; 23-11; 123-3; 123-5

### ***12.2 Licence Area B:***

Clayoquot Sound

DFO Statistical areas 24-4; 24-6; 24-8; 124-3

### ***12.3 Licence Area C:***

Kyuquot Sound, Checleset Bay

DFO Statistical areas 26-1; 26-2; 26-6; 26-7; 26-8; 26-9; 26-10; 126-1

## **13 Closed Areas**

Legal descriptions for closed areas within the above are;

### ***13.1 Area 23***

#### **Bamfield Marine Station Research Area Closure**

Those waters of Pacific Fishery Management Subareas 23-4, 23-6, and 23-7 bounded by a line commencing at Whittlestone Point and running directly to the southern tip of Haines Island; from the northwestern tip of Haines Island to the southern tip of Seppings Island; from the northwestern tip of Seppings Island to Kirby Point on Diana Island; from Kirby Point directly to the northwest tip of Fry Island; from the northwestern tip of Fry Island to the nearest adjacent point on Tzartus Island; from Foucault Bluff on Tzartus Island to the northwest tip of Nanat Island; from the eastern tip of Nanat Island to the nearest adjacent point on Vancouver Island and thence along the coastline of Vancouver Island to the point of commencement. (Research Area.)

#### **Pacific Rim National Park, Broken Group Islands**

Those waters of the Broken Group Islands in park boundaries as shown, since 1989, on Canadian Hydrographic Service Chart 3671. (Parks)

### **Pacific Rim National Park**

That portion of Subarea 23 between the lowest low water on record and the highest high water on record from Whittlestone Point to Cape Beale. (Parks)

### ***13.2 Areas 24, 123, and 124***

#### **Pacific Rim National Park, Long Beach**

That portion of Subarea 124-1, 124-3, and 123-5 between the lowest low water on record and the highest high water on record commencing at Cox Point in 123-3 south to Way Point in 123-5. (Parks)

#### **Cleland Island Ecological Reserve**

The waters between the lowest low water on record and the highest high water on record surrounding Cleland Island in Subarea 124-3. (Parks)

#### **BC Park: Vargas Island Park**

All those parcels or tracts of Crown Land, together with all that foreshore or land covered by water, situated in Clayoquot District and lying within the following described boundaries: Commencing at a point on the natural boundary of Vargas Island, the northerly shore thereof, said point being due North 450 meters and due West 710 meters, more or less, from the northeast corner of District Lot 1457; thence southeasterly on a bearing of 153°, a distance of 2.4 kilometers, more or less, to the intersection with the easterly boundary of District Lot 1450; thence southeasterly in a straight line to the corner of “Yarksis” Indian Reserve No. 11; thence southerly along the westerly boundary of said “Yarksis” Indian Reserve No. 11 to the intersection with the northerly boundary of District Lot 1016; thence westerly, southerly, westerly, southerly, and easterly along the northerly, westerly, northerly westerly, and southerly boundaries of said district Lot 1016 to the southeast corner thereof, being on the natural boundary of Vargas island, on the easterly shore thereof; thence due East 500 meters; thence southeasterly on a bearing of 170, a distance of 980 meters; thence southwesterly on a bearing of 218, a distance of 2.4 kilometers; thence northwesterly on a bearing of 289, a distance of 9.8 kilometers; thence northwesterly on a bearing of 330, a distance of 1.2 kilometers; thence northeasterly on a bearing of 34, a distance of 3.2 kilometers; thence northeasterly on a bearing of 52, a distance of 3.9 kilometers; thence northeasterly on a bearing of 79, a distance of 1.8 kilometers; thence southeasterly in a straight line to a point on the natural boundary of Vargas island, on the northerly shore thereof, said point being due North 450 meters and due West 710 meters, more or less, from the northeast corner of Lot 1457, being the point of commencement; save and except thereout District Lots 1459, 1433, and Parcel ‘A’ of District Lot 1457 and “Ahou” and “Vargas Island” Indian Reserves No. 16 and No. 31, respectively. (Parks)

### **Recreational and First Nations Closure: Echachis Island**

All the intertidal foreshore immediately surrounding Echachis Island (IR 2) (First Nations and recreational)

### **BC Park: Flores Island Park**

Commencing at a point due North 530 metres and due West 630 metres from the northeast corner of District Lot 1373 and being on the natural boundary of Sydney Inlet, on the easterly shore thereof; thence due East, a distance of 1.63 kilometres; thence southeasterly on a bearing of 147, a distance of 175 metres; thence southeasterly on a bearing of 159, a distance of 600 metres; thence southeasterly on a bearing of 151, a distance of 340 metres; thence southeasterly on a bearing of 142, a distance of 815 metres; thence southeasterly on a bearing of 125, a distance of 205 metres; thence due East, a distance of 815 metres; thence southeasterly on a bearing of 125, a distance of 190 metres; thence southeasterly on a bearing of 149, a distance of 375 metres; thence southeasterly on a bearing of 136, a distance of 300 metres; thence southeasterly on a bearing of 172, a distance of 1.20 kilometres; thence southwesterly on a bearing of 242, a distance of 895 metres; thence southwesterly on bearing of 225, a distance of 195 metres; thence southwesterly on a bearing of 219, a distance of 705 metres; thence southwesterly on a bearing of 238, a distance of 675 metres; thence southwesterly on a bearing of 188, a distance of 140 metres; thence southeasterly on a bearing of 141, a distance of 510 metres; thence southeasterly on a bearing of 130, a distance of 440 metres; thence southeasterly on a bearing of 151, a distance of 175 metres; thence southwesterly on a bearing of 188, a distance of 255 metres; thence southwesterly on a bearing of 203, a distance of 1.30 kilometres; thence southeasterly on a bearing of 178, a distance of 210 metres; thence southeasterly on a bearing of 152, a distance of 275 metres; thence southeasterly on a bearing of 125, a distance of 350 metres; thence southeasterly on a bearing of 139, a distance of 1.40 kilometres; thence southeasterly on a bearing of 129 to the intersection with the westerly boundary of District Lot 1565; thence easterly in a straight line to the northwest corner of District Lot 1562; thence easterly along the northerly border of District Lot 1562 to the northwest corner of District Lot 1064; thence easterly along the northerly boundary of District Lot 1064, a distance of 350 metres; thence southeasterly on a bearing of 105, a distance of 655 metres; thence southeasterly on a bearing of 120, a distance of 770 metres; thence southeasterly on a bearing of 146, a distance of 1.10 kilometres; thence southeasterly on a bearing of 161, a distance of 955 metres; thence southeasterly on a bearing of 15, a distance of 695 metres, thence southwesterly on a bearing of 194 to the natural boundary of Flores Island, on the southerly shore thereof; thence in a general northeasterly direction along said natural boundary to the southwest corner of District Lot 1370 and being on the easterly boundary of Gibson Marine Park; thence southeasterly on a bearing of 155, a distance of 1.30 kilometres; thence southwesterly on a bearing of 235, a distance of 5.04 kilometres; thence northwesterly on a bearing of 303, a distance of 10.60 kilometres, more or less, to a point, said point being due South 510 metres from Rafael Point and being a point parallel to and 500 metres perpendicularly distance from the natural boundary of Flores Island on the westerly shore thereof; thence in a general northerly direction along a line drawn parallel to and 500 metres perpendicularly distant from said natural boundary to a point thereon, said point being due North 40 metres and due West 1.68 kilometres, more or

less, from the northeast corner of District Lot 1373; thence northeasterly in a straight line to a point on the natural boundary of Sydney Inlet, on the easterly shore thereof, said point being due North 530 metres and due West 630 metres, more or less, from the northeast corner of District Lot 1373, being the point of commencement; save and except thereout “Tootoowiltena” Indian Reserve No. 28. (Parks)

### **Pacific Rim National Park, Grice Bay and McBey Islets**

The waters of Tofino Inlet within Pacific Rim National Park including McBey Islets and Dinner Island in Tsapee Narrows, Browning Passage in Subarea 24-9 and Grice Bay west and south of Indian Island in Subarea 24-11. (Parks)

### **13.3 Area 26 and 126**

#### **Checleset Bay Ecological Reserve**

Checleset Bay Fishery Closure Area: Those waters of Checleset Bay within Subareas 26-7, 26-8 and 26-10 and 126-1 on the northwest coast of Vancouver Island enclosed by the coordinates 49° 59’ to 50° 6.3’ N and 127° 26’ to 127° 39’ W. (Ecological Reserve)

#### **Stock Assessment Control Sites**

The following table (Table 1) describes index and control sites have been chosen as representative of harvest conditions to monitor goose barnacle fishery impacts. Control sites are within BC Parks to minimize chances that they will be harvested by commercial, recreational, or aboriginal harvesters. For stock assessment purposes, index sites will be harvested while control sites will be closed to harvesting.

Table 1. Stock assessment control and index sites.

Statistical Area	Type of stock assessment site*	General description of habitat**	Name and specific location
23	Control	Slightly protected, high surge area	Southern of two rocks at southeast corner of George Fraser Island (one large bed)
23	Control	Exposed	Rocky point on Vancouver Island near Food Islets (one bed)
23	Index	One exposed bed and two more protected beds	Northern of two rocks at southeast corner of George Fraser Island (three small beds)
23	Index	One exposed bed and one more protected bed	Food Islets (larger islet, two beds)
24	Control	Protected but high tidal surge, good access in poor weather	Father Charles Rock (research permit from BC Parks required) (one or two beds)
24	Control	Exposed	La Croix Middle Outside (research permit from BC Parks required) (one bed)
24	Index	Exposed	Lennard Island NW (one bed)
24	Index	Slightly protected, good access in poor weather	Thorn Reef (one bed)
26	Control	Exposed	Kate Rock North
26	Control	Less productive area, better access in poor weather	Mission control

26	Index	Productive, high surge area with quick replacement	Roll boat rock
26	Index	Less productive area, better access in poor weather	Mission Index (North end of previously surveyed rock in Nicolaye channel)

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## 14 Notification Requirements

### 14.1 Hailing Out

All harvesters must hail out to the on-call dockside monitor via monitor’s cell phone or pager no less than one hour before anticipated departure from the dock. If departure is between 10 pm and 6 am, harvesters must hail out before 9 pm. Harvesters will give the following information before receiving a hail verification number: crew, boat, skipper, probable route and harvest locations, landing location, and anticipated time back. This time will serve as notice to the dockside monitor when s/he can anticipate a hail in (and therefore the need to be at the landing dock). The dockside monitor will ensure that the harvester has a sufficient number of harvest bag tags.

Each harvester will be given a unique hail verification number that he will record directly into his log book. Harvesters may not hail out on behalf of others. Harvesters must speak directly to the dockside monitor to receive their hail verification number.

If the fishing trip is cancelled before any harvest takes place (e.g., before boat leaves dock or before boat arrives at harvest site), the harvester must hail in and record in their log book that they did not successfully harvest.

The hail out procedure serves three functions: 1) to provide a safety check, 2) to allow the monitor to check the number of harvesters going out at any one time, and 3) to provide sufficient warning in advance of the need for the dockside monitor’s services at landing.

### 14.2 Notifying Fisheries and Oceans Canada

Prior to harvesting, the monitor shall notify the DFO field office in Port Alberni by phone during working hours to define the time and date that harvesting will take place leaving a message if no person answers.

Notification Procedures are detailed in Appendix 4.

### 14.3 Hailing In

When harvesters return from harvest sites, they will hail in via cell phone or VHF radio (at roughly the time prearranged at the time of hail out) to the on-call dockside monitor with the anticipated landing time. The on-call dockside monitor will be responsible for ensuring that a monitor is present at the landing.

Hailing in procedures are detailed in Appendix 4.

#### ***14.4 Validation Requirements***

All product must be validated at the time of landing and sales. Arrangements must be made by harvesters with Dockside Monitors during hail out/in procedures.

#### ***14.5 Fish Slip Requirements***

It is a condition of licence that an accurate written report shall be furnished on a fish slip of all fish and shellfish caught under the authority of this licence. A report must be made even if the fish and shellfish are used for bait, personal consumption, or otherwise disposed. The written report shall be posted not later than seven days after the offloading and sent to:

WCVI Aquatic Management Association  
3017 3<sup>rd</sup> Avenue  
Port Alberni BC  
Phone (250) 724-6244

Fish slip books may be purchased at Fisheries and Oceans Canada, Catch Statistics Unit, 200-401 Burrard St., Vancouver BC V6C 3S4, Phone (604) 666-2716, or at most DFO offices.

**14.6 Figure: 1 Goosebarnacle Fish Slip Example**

**Goose Neck Barnacle Fish Slip**

Slip #

DD/MM/YYYY

Buyer Name and Address

Fisherman's Name  
 Surname                      Given Name(s)  
                     

Fisherman's Address

Plant/Packer/Collector

Goose Neck Licence #

Area	Sub Area	Days Fishing	Weight (lb)

Species	Total Weight (lb)	Price	Value

I certify that the above information is complete and correct.

\_\_\_\_\_  
 Fisherman's signature

\_\_\_\_\_  
 Tallyman's signature

## ***14.7 Enforcement***

The Department of Fisheries and Oceans has the responsibility to enforce the *Fisheries Act* and associated regulations, to address conservation, health and safety issues, and to maintain proper management and control of the various fisheries. It is expected that, as priorities allow, fishery officers will incorporate the goose barnacle experimental fishery into their regular duties of monitoring and compliance patrols by vessel and by air (in open and closed areas), at off-loading sites, and at processing facilities.

Monitor/validators will inform DFO enforcement officials of harvest events at time of haul out, and sales transactions.

First Nations monitor and enforce aboriginal fisheries through their Fisheries Guardians, who are authorized to act on behalf of the First Nation to ensure that required permits and catch reporting are in place.

Goose barnacles harvesters support close enforcement that ensures that poaching and rule-breaking are caught and penalized. A significant monitoring mechanism in this fishery leading to enhanced enforcement is the close proximity of all harvesters' residence to the fishing grounds. Close communications between harvesters, First Nations, other commercial fishermen or resource users in the area, and those who use docks and wharves regularly will allow for informal identification of poachers and those breaking rules. Participants will formulate an internal sanctions process to help support formal enforcement procedures. The appropriate enforcement authority will be contacted to follow up on suspicious activity.

## **15 Other issues**

### ***15.1 Oil Spill Preparation and Response***

Aside from over-harvesting issues that are addressed through responsible harvesting, oil spill preparation and response is the only major habitat issue in the goose barnacle fishery. Licensed goose barnacle harvesters will work with relevant parties to address oil spill preparation and response.

### ***15.2 Sewage, Garbage, and Debris Control***

Licensed goose barnacle harvesters will take care to remove all garbage and other pollution from harvest sites.

### ***15.3 Education and awareness***

It is important to build and maintain community and public awareness about goose barnacles, goose barnacle habitat, and the goose barnacle fishery. In cooperation with partners, harvesters are committed to undertaking communications activities as appropriate.

## **Appendix 1 Harvesting Code of Practice**

Title: A Code of Conduct for Gooseneck Barnacle Harvesting for the West Coast of Vancouver Island

Date of completion: March 19th, 2002

Prepared by: Jennifer Toole  
With input from: Nuu-chah-nulth Tribal Council Fisheries Program  
West Coast Goose Barnacle Harvesters Association  
Canadian Goose Barnacle Harvesters Co-operative  
Harvesters from the Ka:'yu: k't'h'/Che: ktles7et'h First Nations  
Department of Fisheries and Oceans  
Canadian Coast Guard

HARVESTING AND STORAGE OF LIVE GOOSENECK BARNACLES IN THE INTERTIDAL ZONE.

### ***1.1 HARVESTING PRACTICES***

#### **Harvest areas**

Goose barnacles will only be harvested from areas open under a valid scientific or experimental licence or under a fishery management plan.

#### **Biological condition of harvestable barnacles**

Only gooseneck barnacles that are in good biological condition will be harvested, such that they will be able to survive export as a live product.

Market quality of harvestable barnacles

Only marketable gooseneck barnacles will be harvested. Marketable gooseneck barnacles are defined by:

- a) Size: Avoiding gooseneck barnacles that are too small or too long for the market;
- b) Condition: Uncut and undamaged barnacles;
- c) Colour: Acceptable colour for market.

Harvest of rosettes (clumps) of live barnacles

Gooseneck barnacles will be harvested selectively in small tight clumps (rosettes), which helps to provide good quality product. Single gooseneck barnacles will only be harvested where feasible; large amounts of substrate will not be removed just to harvest single

gooseneck barnacles. This practice also helps to avoid “clear-cut” areas that will take years to recover by:

- a) Leaving as many acorn barnacles and mussels as possible to provide substrate for future populations.
- b) Leaving barnacles, which will continue to grow, contributing to a sustainable fishery. Non-marketable barnacles that are removed from rocks should be replaced in areas from which they were harvested if possible. (N.B. Only a small percentage of barnacles on a rock are usually harvestable for sale, therefore stocks remaining on the harvest sites contribute a sustainable fishery.)
- c) Harvesting will be conducted in a manner to minimize the damage to the sea mussel beds (stepping carefully, avoiding damage by vessels, replacing dislodged sea mussels, etc).

### **Harvesting tool**

Gooseneck barnacles will only be harvested using the “goose gun” harvesting tool, which is a car spring-leaf mounted on a handle. This tool is useful for removing the harvestable rosettes from the surrounding substrate and biomass. It may also serve as an anchor when harvester may be washed by waves.

Cleaning gooseneck barnacles before leaving harvest site

Harvested gooseneck barnacles will be 85-90% cleaned of mussels, small or non-marketable barnacles, acorn barnacles, shell, and other material before leaving the harvest site. (The only allowable exception to this requirement is when safety precautions conflict, i.e., harvesters must leave rocks quickly.)

This contributes to a sustainable fishery by:

- a) Leaving smaller and younger barnacles on the harvest site for future harvest.
- b) Maintaining the existing rocky intertidal ecosystem so that future gooseneck barnacle populations are better able to thrive.

This practice also helps to maximize harvest of marketable product by:

- a) Ensuring that marketable product is clearly identified before leaving the harvest site;
- b) Reducing mussel and acorn shards that can cut and kill barnacles if left in collecting buckets.

Storage and transportation of gooseneck barnacles

Typically gooseneck barnacles (a crustacean) are placed in a sack, such as an onion sack, at the harvest site for transportation to the landing site. Gooseneck barnacles shall not be stored in water before being landed. Harvesters will attend to stored product at least once every 48 hours to check their condition and ensure that any dead barnacles are removed.

The weight of all gooseneck barnacles landed will be validated according to harvest licence conditions. Gooseneck barnacles will be handled and stored in a manner that keeps them alive and free of contamination. It is important to avoid all freshwater, including rainwater, as it will cause mortality of gooseneck barnacles. Gooseneck barnacles will be transported in approved containers to avoid contamination, and keep them cool, moist and alive.

## ***1.2 HANDLING REQUIREMENTS FROM HARVESTING VESSEL TO PROCESSOR/BUYER***

It is in the best interests of all parties that the product be kept alive and clean of sand, debris, and contamination before purchase.

## ***1.3 TRAINING OF NEW HARVESTERS***

New harvesters will go through a training period to help them understand the importance of safety practices and sustainable harvesting practices. It is recommended by gooseneck barnacle harvesters that any new pickers be given a conditional apprentice license for a period of time before receiving a complete license.

1. Option #1: should be a deckhand for a season length of time up to skipper's discretion or with a minimum time such as 6 trip or 6 months.
2. Option #2: summer time only for initial training 6-month training period. (This option was not wholly agreed upon as some harvesters do not go out in the summer.)

## Appendix 2 Safety Guidelines

Title: Goose Barnacle Vessel and Harvesting Safety Guidelines for the West Coast of Vancouver Island

Date of completion: March 19th, 2002

Prepared by: Jennifer Toole  
With input from: Nuu-chah-nulth Tribal Council Fisheries Program  
West Coast Goose Barnacle Harvesters Association  
Canadian Goose Barnacle Harvesters Co-operative  
Harvesters from the Ka:'yu: k't'h'/Che: ktles7et'h First Nations  
Department of Fisheries and Oceans  
Canadian Coast Guard

### MANDATORY SAFETY PROCEDURES & SPECIFICATIONS

Small vessels used for transportation in the Gooseneck Barnacle Fishery fall under small vessel regulations as set out by Canadian Coast Guard and Transport Canada. *See:*

[http://www.ccg-gcc.gc.ca/obs-bsn/sbg-gsn/main\\_e.htm](http://www.ccg-gcc.gc.ca/obs-bsn/sbg-gsn/main_e.htm)

<http://www.tc.gc.ca/marine/menu.htm>

#### ***2.1 Mandatory equipment for vessels include (see regulations for complete list):***

- Charts of relevant coastal waters
- Some form of communication: satellite or VHF radio, cell phone
- One (1) personal floatation device (PFD) for each person on board
- One (1) buoyant heaving line of not less than 15m or one approved lifebuoy (ring) attached to a buoyant line of not less than 15m in length.
- A re-boarding device if the freeboard is greater than 0.5m.
- One (1) manual-propelling device (oar) or an anchor with not less than 15m of cable, rope, or chain in any combination.
- One (1) bailer or one manual hand pump with sufficient hose to pump water from the bilge over the side of the boat.
- Two (2) class 5BC fire extinguishers if vessel is equipped with fuel-burning cooking, heating or refrigeration units.
- One (1) watertight flashlight
- Six (6) Canadian approved flares, type A, B, or C
- A sound signalling device (horn)
- Navigation lights that meet applicable standards set out in the Collision Regulations from Transport Canada:

- The lights prescribed in these Rules shall have an intensity so as to be visible at the following minimum ranges, for vessels less than 12m in length:
- a masthead light, 2 miles
- a sidelight, 1 mile
- a sternlight, 2 miles
- a towing light, 2 miles
- a white, red, green or yellow all round light, 2 miles

## **2.2 RECOMMENDED PROCEDURES & SPECIFICATIONS**

Recommended vessel specifications:

### **2.2.1 Vessel size**

Vessel size will be dependent on location of harvest site and number of harvesters travelling together. It is recognized that some harvest areas are accessible by land, or are protected enough to be accessed by rowboat.

*A minimum vessel size of 16 feet is recommended. All vessels will be subject to Transport Canada guidelines and regulations.*

### **2.2.2 Hull type**

No mandatory hull type is recommended at this time, although many skippers prefer aluminum as the strongest against landings on rough rocks in rough seas.

### **2.2.3 Power**

Vessel power (e.g., outboard motor) will be matched to the size of the boat to allow vessel to easily leave rocks in strong currents and surf.

### **2.2.4 Safety Equipment for Harvest Site**

- PFD with reflective tape or patches for each individual on harvest site
- Marine or Faller's Whistle for each individual on harvest site
- Small personal flare or high-intensity flashing light (Personal Locator Beacon) on jacket for each individual on harvest site
- Headlamp with extra batteries for night time harvesting, for each individual on harvest site
- Appropriate clothing
- Appropriate footwear
- Appropriate gloves – suggested item
- Handheld VHF radio, satellite phone, or cell phone
- Lifebuoy (ring), or throw bag, attached to buoyant lifeline not less than 15m in length

- **Note: no equipment or bags should be affixed to the body**

### ***2.3 Recommended qualifications for harvesters***

- Harvesters must possess one of the following: a valid commercial goose barnacle licence, an “apprentice” licence, or a valid experimental fishery licence. New harvesters will be supervised by an experienced (licensed) harvester.
- One person in each crew should have current first aid certificate
- Pre-departure, Travel to and from Harvest Site
- A minimum of two people will travel together to a harvest site, second person may be harvester, trainee, or operator of boat.

### ***2.4 All skippers will prepare a pre-departure checklist which will include:***

- Weather forecast & current weather conditions
- Wave height readings if available.
- Local hazards and boating restrictions
- Sufficient fuel
- Submit sailing plan to a responsible person on shore - friend, relative, validator, etc.
- Communications check: Discuss specific locations (and directions to these locations) to be harvested and procedures to be followed in the event of an emergency
- First aid equipment check

### ***2.5 Getting On and Off Harvest Site***

- Harvesters recognize that various rocks and harvest sites are exposed and available according to tide height and weather.
- Skipper is last to leave the vessel and first to return to the vessel if the vessel is beached.
- A safe landing spot for each harvest site is determined by experienced, licensed harvesters and the skipper such that:
- Substrate for harvesters to step onto is safe (try to avoid slippery seaweed by arriving before tide is too low);
- Sufficient depth of water to avoid damage to propeller;
- Position vessel according to currents, wind, and wave sets;
- Get onto rocks at apex of wave;
- Each person to leave vessel as they feel safe;
- The ‘bow-man’ is the first on the rocks;
- Stern line and bow lines should be secured before remainder of harvesters leave boat; and
- Skipper in control of vessel until ‘bow-man’ is on the rocks at which point ‘bow-man’ is in control of persons exiting vessel. If ‘bow-man’ loses bow line the skipper of the vessel is again in control of vessel.

- Due care will be taken to watch change in tides and waves to ensure constant shore access to vessel. Depressions within harvest sites may cause harvesters to be isolated from boat as tide rises.

## ***2.6 Standby/Anchoring:***

- All people may disembark boat at harvest site or one person may remain onboard to man boat.
- If all people disembark boat then employ a “clothesline” and anchor system –to retrieve the boat.

## **EMERGENCY PROCEDURES**

**Site location:** \_\_\_\_\_

### **Small boat operations (Remote)**

#### **PERSONNEL FALLS IN WATER - (AIDED RESCUE) -**

Should a situation arise where an individual falls out of the boat or off the rock, the following emergency procedures should be followed: **(The crew should be aware of their position for emergency calls.)**

**The “skipper” will take charge of the rescue (unless the skipper falls in - natural chain of command occurs).**

**The “skipper” will be responsible for performing the rescue, or designate the rescuer, with the assistance of a third person if present.**

**All other personnel, visitors etc. will stand by. These persons will give assistance only as directed by the skipper.**

**The “skipper” will assess the situation.**

**The “skipper” will check for hazards and summon help if required and available.**

**Rescue the victim.**

**If fall off a boat, follow the procedures outlined by small boat safety:**

- The rescuer will bring the boat up to the victim, idle or kill the engine then assist the victim into the boat.

**If fall off a rock:**

- Swim away from the rock in order to assess situation, swim towards rocks if safe and possible to return to harvest site from the water, and boat is not able to perform rescue.
- Each harvester should carry a flare and/or light which may be set off at this time to provide location of victim to rescuers
- Shed clothing, if necessary. Do not kick off your boots – neutral buoyancy when filled with water, and will need them when you climb up on the rocks.
- If possible, the rescuer will bring the boat up to the victim, idle or kill the engine then assist the victim into the boat.

7. Once the victim has been contacted and brought into the rescue boat/harvest site his/her condition will be determined following standard first aid procedures:

- assess airway
- assess breathing
- assess circulation
- check for deadly bleeding

- Prevent shock

**Following the assessment, outside emergency medical assistance will be contacted if required.**

**The following Communication resources are available to the crew:**

**Marine VHF use Channel \_\_\_\_\_ contact \_\_\_\_\_.**

This may be a preferred means as nearby vessels may be available to assist.

**Other (specify):**

**Personal Locator Beacon**

**Cell Phone & Satellite Phone: Dial 911 for emergencies**

### Appendix 3 Evaluation Framework

**An evaluation framework will be developed in the first year of the experimental harvest.**

#### **DRAFT FRAMEWORK**

It is desirable to measure performance indicators in Ucluelet, Tofino, and Kyuquot separately, to compare afterward and use in an adaptive management framework.

<b><u>Objective – should refer back to Section 8</u></b>	<b><u>Performance Indicator</u></b>
Ecological sustainability of goose barnacle fishery	Percentage discard of non-target species
	Percentage discard of target species
	Harvest practices
	Size of harvest patches
	Total amount of product removed from harvest sites
	Recovery time of harvest patches
Maximize economic benefit	Number of participants permitted
	Number of participants participating
	Contribution of goose barnacle fishery to BC fishery
	Cost of managing fishery
	Personal costs borne by harvesters (e.g., licence fees, safety equipment, log books etc)
Maximize social benefit to aboriginal and non-aboriginal communities	Number of participants permitted
	Participation rate in aboriginal [S.35(1)] and recreational fisheries
	Satisfaction rate of community members and fishermen that fishery is being conducted in an ecologically and socio-economically sustainable manner
	Did aboriginal communities reach harvest targets?
	Did non-aboriginal communities reach harvest targets?
Provide priority access to First Nations S.35(1) fisheries	Did the experimental fishery prevent or diminish access to goose barnacle fishing by First Nations at any time, in any place? (Describe)

	Did the experimental fishery enhance or provide new opportunities for First Nations to access goose barnacle for home use? (Describe)
Maximize personal health and safety.	Did harvesters report any health or safety problems?
Enforcement	Audits of harvest log and validation entries
	Harvest practices audits

## Appendix 4 Fishery Monitoring and Harvest Validation Procedures

Catch monitoring, harvest audits, and validation procedures for the experimental goose barnacle fishery

November 10<sup>th</sup>, 2003

### Glossary & Acronyms

AMA NCN/WCVI Aquatic Management Association

Dockside Monitor A person who is present at the point of landing to verify catches. See below for responsibilities of this position.

DFO Department of Fisheries and Oceans

DMC Data Management Center

NCN Nuu-chah-nulthaht

OGM On Grounds Monitor: A person who attends harvest events with harvesters to collect biological information. See below for responsibilities of this position.

Validator A person who is present at the point of sale to collect biological and sales information. See below for responsibilities of this position.

WCGBHA West Coast Goose Barnacle Harvesters Association

WCVI West Coast Vancouver Island

### Contacts

On-call Monitor Barkley Clayoquot (cell phone)	250-726-xxxx
On-call Monitor Kyuquot (VHF)	VHF Ch. xx
Gerry Schreiber (Ucluelet office)	250-726-7040
Gerry Schreiber (cell)	250-726-8665
Leonard John (Kyuquot office)	250-332-5259
Glenna Richards (Tofino cell)	250-725-3707

## **Background**

The experimental goose barnacle fishery has been developed with a strong emphasis on an appropriate level of monitoring at all phases of the fishing cycle. It is imperative that the experimental fishery is conducted in accordance with the fishery plan with respect to the allowed numbers harvesting in any given area at one time.

These procedures are intended to ensure consistent product tracking, ensure that the date, location of harvests, amount from each site and numbers of harvesters on each site is recorded to allow consistent monitoring and credible research data collection. The landings and buying/selling events, and product loss will be tracked through a qualified Monitor on site at landings and at point-of-sale.

### ***4.1 Roles and Responsibilities***

### ***4.2 Monitors, Dockside Monitors, and Validators***

Goose barnacle fishery On Grounds Monitors, Dockside Monitors, and Validators are individuals who are organized, have a good understanding of the principles of biological data collection, are computer-literate, and can accurately identify the plants and animal species associated with the rocky intertidal ecosystem. They may or may not have formal post-secondary education in biology.

On Grounds Monitor (OGM) will work independently alongside goose barnacle harvesters at the harvest site to collect biological data on by-catch and discard. In addition, they will monitor harvest practices by collecting data on harvest methods, length of time spent harvesting, harvest patch sizes and locations.

Dockside Monitors will be present at the landing port to verify hail out numbers, review and take a copy of harvester log books, weigh harvested goose barnacles, and record any additional information required. Dockside Monitors will also be responsible for the hail system used by harvesters before and after harvesting. The on-call Dockside Monitor will be reachable via cell phone, pager, and by VHF radio when a hail-in is expected.

Sales validators will be present at all sales transactions, regardless of location, to record the number and weight of each bag of product that is sold, price, buyer, and any additional information required.

A single person can perform the function of On Grounds Monitors, Dockside Monitor, or Validators.

## **Training**

All On Grounds Monitors, Dockside Monitors, and Validators will be trained by an experienced DFO or AMA staff person, and approved by DFO.

## **Hiring**

All On Grounds Monitors, Dockside Monitors, and Validators will be approved by DFO and AMA. The AMA, the WCGBHA, and the Kyuquot First Nation will be responsible for recruiting, receiving approval from DFO, hiring, and employing On Grounds Monitors, Dockside Monitors, and Validators.

### ***4.3 Data management responsibilities***

The AMA will be responsible for all catch data management including collection, collation, key punching, verification, and submittal to DFO.

The AMA will develop a DFO-approved Access database for all reports and forms for product tracking from harvest site to processor.

Hard copies of records and the updated Access database will be forwarded to the Shellfish Data Management Unit at the Pacific Biological Station (DFO) on a weekly basis. This will include but is not limited to harvester log books, by-catch and discard information, photos, landing verifications, and sales validations.

Buyers will be responsible for submitting fish slips to DFO.

### ***4.4 Goose Barnacle Harvest Catch Monitoring and Validation***

#### **Hailing out**

All harvesters must hail out to the on-call Dockside Monitor via cell phone or pager no less than one hour before anticipated departure from the dock. If departure is between 10 pm and 6 am, harvesters must hail out before 9 pm. Harvesters will give the following information before receiving a hail verification number: crew, boat, skipper, probable route and harvest locations, landing location, and anticipated time back. This time will serve as notice to the Dockside Monitor when s/he can anticipate a hail in (and therefore the need to be at the landing dock). The Dockside Monitor will ensure that the harvester has a sufficient number of harvest bag tags.

Each harvester will be given a unique hail verification number that he will record directly into his log book. Harvesters may not hail out on behalf of others. Harvesters must speak directly to the Dockside Monitor to receive their hail verification number.

If the fishing trip is cancelled before any harvest takes place (e.g., before boat leaves dock or before boat arrives at harvest site), the harvester must hail in and record in their log book that they did not successfully harvest.

The hail out procedure serves three functions: 1) to provide a safety check, 2) to allow the Monitor to check the number of harvesters going out at any one time, and 3) to provide sufficient warning in advance of the need for the Dockside Monitor's services at landing.

### **Hail out procedures for Dockside Monitor**

When receiving a hail-out call, Dockside Monitor will record the following information in the hail book:

- Harvester's name
- Time of hail out call
- Anticipated time of departure
- Anticipated route of travel (harvest sites)
- Anticipated return time
- Name of all others on crew – harvesters and non-harvesters if present
- Name of vessel and skipper
- Does harvester have sufficient bag tags? (Yes or no)

On-call Dockside Monitor will not issue more than six hail-out numbers in Barkley OR in Clayoquot Sounds at any one time. If all information is received above from an eligible harvester (i.e., the first through sixth harvester per area), then the on-call Dockside Monitor will issue a hail out number (the next hail out number listed in the hail book. If on-call Dockside Monitor is not the same person who will validate landings, s/he will make arrangements for another validator to meet the boat.

If staff change to new on-call Dockside Monitor is made while harvesting is occurring, past on-call Monitor will remove one copy of hail book page before handing it over, fax to data management centre and keep the copy in his/her records.

Notification: prior to harvesting, the Monitor shall notify the DFO field office in Port Alberni by phone during working hours (250) 724-0195 or fax (250) 724-2555 to define the time and date that harvesting will take place (leave a message if no person answers).

### **Hail out procedures for harvesters**

No less than one hour prior to anticipated time of departure, each harvester will call the on-call Dockside Monitor to receive a hail out number.

To issue a hail out number, the Monitor will ask for the following information:

- Harvester's name
- Time of hail out call
- Anticipated time of departure

- Anticipated route of travel (harvest sites)
- Anticipated return time
- Name of all others on crew – harvesters and non-harvesters if present
- Name of vessel and skipper
- Does harvester have sufficient bag tags? (Yes or no)

The Monitor will issue a maximum of 6 hail out numbers for Barkley Sound, 6 hail out numbers for Clayoquot Sound and 12 hail out numbers for Kyuquot Sound for a given low tide event. An individual is only eligible to harvest product if s/he has been issued a hail out number by the Dockside Monitor. Hail out numbers are issued to individuals, not crews, other groups of harvesters, nor boats or equipment. If the crew is two people and only one can receive a hail out number, neither can go due to safety requirements (minimum two people per boat).

If a harvester does not have sufficient bag tags, it is his responsibility to meet the Monitor to get more tags.

If the harvest trip is cancelled, the harvester **MUST** call the Monitor to cancel the hail out. The harvester must record catch of 0 in his log book (e.g., do not rip out the log book page for that day).

### **Harvest Bag - Site ID (Bag-tags)**

Harvesters will individually tag each harvest bag (each has a unique number). Harvesters are responsible for ensuring that all information is recorded (name, date, harvest location) on the tag in permanent marker. Once product is placed in a bag, harvesters will not interchange or mix bags between themselves or between harvest locations. For example, if a bag is only half filled at one location, the harvester will use a new bag at the next harvest location. (See bag-tag example at end of this section)

### **Harvest logbooks**

All harvesters will be responsible for maintaining accurate log books which include information on date of harvest, catch sizes, harvest locations, and landing port. All trips that receive hail out numbers will be reported in the log book, even if no harvest is made.

Harvesters will provide the complete log book for inspection and validation at the time of landing to the Dockside Monitor, where the Monitor will remove two copies from the log book (pink and yellow) and leave the original (white) in the log book. The logbook shall have numbered pages. (See Harvest Logbook example at end of this section)

## **Hail in**

When harvesters return from harvest sites, they will hail in via cell phone or VHF radio (at roughly the time prearranged at the time of hail out) to the on-call Dockside Monitor with the anticipated landing time. The on-call Dockside Monitor will be responsible for ensuring that a Monitor is present at the landing.

### **Hail in procedures for harvesters**

Harvesters will hail in to the Monitor cell phone (Barkley/Tofino) or via VHF (Ahousaht/Kyuquot) when they leave the harvest site or as they approach the landing dock. Once contact is made with the on-call Monitor, arrangements will be made for when/where to meet. Harvesters will cooperate by landing at convenient docks (such as government docks).

If landing is anticipated to be between 11 pm and 6 am, the harvesters and Monitor may make arrangements for landing validation the next morning. If this occurs, harvesters will keep any discarded material they sort from product, separated by harvest site (i.e., they will not mix discard from two different sites together).

For safety reasons, harvesters **MUST** hail in, regardless of whether the landing validation will take place immediately or the next morning.

If two or more groups hail in to land at approximately the same time, the Dockside Monitor will handle the landings in the order that the hail ins are received. Harvesters will be cooperative and try to land at the same dock in this case.

### **Hail in procedures for Monitors**

- When a hail in call is received, the Monitor will check against the hail book verifying which harvesters are returning.
- The Monitor and the harvester will make arrangements for when/where to meet.
- If landing is anticipated to be between 11 pm and 6 am, the harvesters and Monitor may make arrangements for landing validation the next morning.
- The dockside Monitor will attempt to reach harvesters who have not hailed in an hour after their anticipated hail in time via VHF. If s/he is unsuccessful, s/he will alert the Canadian Coast Guard.
- If two or more groups hail in to land at approximately the same time, the dockside Monitor will handle the landings in the order that the hail ins are received. Harvesters will be cooperative and try to land at the same dock in this case.

### **Landing verification**

A Dockside Monitor will be present at all landings.

Landing procedures for harvesters

When meeting Monitor at pre-arranged time and place, harvesters will present log books to Monitor for verification. If Monitor requests further information, harvesters will comply.

Harvesters will present harvest bags for to Monitor who will record weights on log book forms.

### **Landing procedures for Monitors**

- At time of landing, Monitor will first inspect harvester log books for completeness, verifying hail out number against record in hail book and requesting further information if necessary.
- Monitor will then record a unique landing verification number on the log book page.
- Monitor will weigh each harvest bag and record weight in log book.
- When log book is complete, Monitor will sign the harvest log book.
- Monitor will then remove two copies (pink and yellow) of the harvest log and leave original in book and return to the harvester.
- Monitor will record any anecdotal information harvesters have on a separate form.
- Monitor will confirm storage sites and inquire about arrangements for sales.
- Monitor will immediately fax to data management centre:
  - Harvest log book pages
  - Hail book pages
  - Any additional anecdotal information
- Monitor will photocopy each harvester log page for his/her personal records, and bundle and mail or drop off once per week to the data management centre:
  - The two copies of log book page (keeping photocopy in personal records)
  - Hail book pages, keeping originals in the hail book.

### **4.5 Product storage**

We storage will be recorded based on the time between landing and sales validations. Harvesters will be responsible for the storage of their product in clean water, including timely cleaning to prevent mortality. Bag tags may not be removed during storage or cleaning. Should some or most product be lost from a bag, the harvester may NOT combine remaining product into another bag. Should all product be lost from a bag, the harvester will keep the bag tag and bag and present it to the sales validator by calling the validator and meeting him/her. Harvesters will inform the validator immediately in case of product theft.

At any time during the storage period, a Dockside Monitor/Validator may call a harvester and request to weigh the bags. Harvesters agree to cooperate with Dockside Monitors/Validators who request this.

#### ***4.6 Sales Validation and Export Certificates***

Prior to a sale event, both the harvesters and the buyer will call in to the validator (via cell phone number) with a pre-arranged meeting time and place. Sales may not take place without a validator present.

At point of sale, the validator will record each bag tag number, weigh each bag, and record price before product is placed in transport bags or totes. Bags will remain with their contents as tagged at the time of harvest until the Goose Barnacles are processed at a processing plant designated in the licence.

Licence holders shall ensure that buyers issue DFO fish slips, which must be signed by the validator.

A copy of the sales validation log will be given to the buyer. The original will remain with the validator. A copy of the sales slip will be issued to the harvester and validator and the buyer will retain the original for him/herself and DFO.

The Data Management Centre will request and receive Export Certificates from the companies. Export quantities will be checked against landings and sales quantities.

#### ***4.7 Sales validation procedures for harvesters***

Harvesters will call the on-call Dockside Monitor to arrange for sales validation. No sale can take place without a validator present. 24 hour notice is required, although individual validators may agree, at their discretion, to be present with less than 24 hours notice. Harvesters and Dockside Monitor will agree to a time and place of sale.

At point of sale, harvesters will present harvest bags for weighing and recording by Monitor before handing bags over to buyer.

#### ***4.8 Sales validation procedures for Monitors***

On-call Dockside Monitor will receive notification of sales via cell-phone. Monitor will note time and date of call on sales validation form, or pass on to the Monitor/Validator who will meet the harvesters and buyers who will record onto the sales validation form.

At point-of sale, Monitor/Validator will record:

- Tag number of each bag
- Weight of each bag
- Name of buyer/agent and company
- Destination of product (e.g., processing plant)
- Product price
- Monitor/Validator will record any other information about discards, product quality, storage issues, etc.
- Monitor/Validator will sign the sales validation form and remove one copy which will accompany product to the plant.

- Monitor will immediately fax the sales validation form to data management centre
- Monitor will bundle and mail or drop off once per week to the data management centre:
- The original sales validation forms

### **Sales validation procedures for buyers**

- Buyers will not pool individual bags of product in totes or other containers until AFTER the sales validator authorizes him/her to do so.
- Buyers will ensure that a signed copy of the sales validation form accompanies product to the processing plant.
- Buyers will arrange for a fax of receipt of product from the processing plant to the data management centre.
- Buyers will be responsible for filling out and submitting fish slips according to DFO procedures.

### **4.9 Harvest audits**

It is important to ensure that the fishery is monitored carefully to assess potential harvest impacts, weather impacts, and to distinguish between other events that could affect goose barnacle stocks and their habitat.

Audits will be conducted on a random basis by prearranged, random selection of ¼ of the hail out numbers. The pre-determined hail out numbers will NOT be shared with harvesters but will allow Dockside Monitors and On Grounds Monitors to make plans accordingly.

If the on-call Dockside Monitor receives a hail out selected for audit, s/he will notify the harvester at the time of hail out that s/he will be accompanying the harvesters. If more than one group of harvesters hails out, then the Dockside Monitor will ensure that the first group has an On Grounds Monitor (although s/he may not go out herself)

On Grounds Monitors will collect biological information on by-catch and discard, monitor harvest practices, record harvest patch sizes, and record any other anecdotal information that harvesters provide, such as rock condition, predator effects, rock accessibility, etc.

Initially up to 25% of harvest events will be audited and this may be altered according to the results of audits. The audits will attempt to cover a cross section of the harvest sites. If these audits are conducted during daylight harvesting, photos will be taken in a consistent manner to allow changes to be tracked over time. These photos will be submitted to DFO. Spot audits may also be triggered through harvester concerns or reports of bad harvest practices, potential poaching issues or severe weather damage. Photo monitoring will take place during these audits as well.

### **Procedures for On Grounds Monitors and harvesters during harvest audits**

- When On Grounds Monitors accompany harvester on a random audit basis, all harvesters will cooperate fully.
- At the harvest site, harvesters will place discard material in bags provided by On Grounds Monitor, and otherwise will harvest normally according to procedures (e.g., tag bags, fill out harvest logs).
- On Grounds Monitor will bag all discard material on a per harvester, per site basis and take back to landing dock.
- On Grounds Monitors will fill out the Harvest Audit form as required.
- At landing, On Grounds Monitor will act as Dockside Monitor according to procedures above.
- After conducting landing procedures, On Grounds Monitor/Dockside Monitor will sort and weight discard and fill out the harvest audit (discard) form.
- The harvest audit form will be faxed immediately to the data management centre.
- Data Management Center (DMC)

Hard copies of all data forms will be received by the data management centre. One individual will be employed to organize, key punch, archive, verify, and submit database/hardcopies to DFO.

#### ***4.10 Hail book forms***

DMC will archive (1) faxed in copies and (2) mailed-in/dropped off copies of hail book forms in a binder, filed by date.

Non-harvest events (e.g., harvest is 0) will be key punched into Access database.

#### ***4.11 Log book/landing validation forms***

DMC will review all log books within 24 hours of receipt (48 hours on weekends) of faxed copies and call harvesters and/or Monitors with any queries or questions.

DMC will key punch log book forms into Access database within 48 hours of receiving faxed copies. After key punching one batch of forms, key puncher will randomly check at least three lines per log book page for verification. Faxed copies will be archived in log book binder, by date of harvest.

Upon receipt of mailed-in/dropped off the two copies of log book forms, DMC will archive one copy in log book binder (along with faxed copy) by date of harvest. Second copy will be kept for submission to DFO.

#### ***4.12 Harvest audit (discard) forms***

DMC will review all harvest audit (discard) forms within 24 hours of receipt (48 hours on weekends) of faxed copies and call Dockside Monitors with any queries or questions.

DMC will key punch harvest audit (discard) forms into Access database within 48 hours of receiving faxed copies. After key punching one batch of forms, key puncher will randomly check at least three lines per harvest audit (discard) form for verification. Faxed copies will be archived in harvest audit (discard) binder, by date of harvest.

Upon receipt of mailed-in/dropped off the original harvest audit (discard) form, DMC will photocopy the original, archive the original in harvest audit (discard) binder (along with faxed copy) by date of harvest. The photocopy will be kept for submission to DFO.

#### ***4.13 Sales validation forms and export certificates***

DMC will review all sales validation forms and export certificates within 24 hours of receipt (48 hours on weekends) of faxed copies and call Dockside Monitors with any queries or questions.

DMC will key punch sales validation forms and export certificate quantities into an Access database within 48 hours of receiving faxed copies. After key punching one batch of forms, key puncher will randomly check at least three lines per harvest sales validation form for verification. Faxed copies will be archived in sales validation binder, by date of harvest.

Upon receipt of mailed-in/dropped off original sales validation form, DMC will photocopy the original, archive the original in sales validation binder (along with faxed copy) by date of harvest. The photocopy will be kept for submission to DFO.

#### ***14.14 Data submission to DFO***

DMC will submit, on a weekly basis to the Shellfish Data Management Unit at PBS: an updated version of the Access database

- a hard copy of all log book forms
- a photocopy of all landing verification forms
- a photocopy of all harvest audit (discard) forms
- a photocopy of all sales validation forms
- photos as available

#### ***14.15 Data verification***

Bi-annually, the Aquatic Management Association will verify key punching accuracy by randomly choosing 10% of individual harvest log forms, landing verification forms,

harvest audit (discard) forms, and sales validation forms and verifying hard copy and key punched data.

If error rates of more than 1% are discovered, then a larger data audit will be undertaken. The AMA will also undertake internal audits and evaluations to ensure timeliness and accuracy.



WCVI Experimental Goose Barnacle Fishery Guidelines – November 25<sup>th</sup>, 2003

**WCVI Experimental Goose Barnacle Fishery: Harvest Audit (OBSERVER)**  
 USE A NEW SHEET FOR EACH SEPARATE HARVESTING LOCATION

VALIDATION ID#: \_\_\_\_\_

**SECTION D: TO BE COMPLETED BY OBSERVER DURING HARVEST AUDIT**

SECTION D	Observer name	Harvest Date	Was a vessel used to reach harvest site(s)? <input type="checkbox"/> Y <input type="checkbox"/> N	Name of vessel and skipper Skipper: _____ Vessel: _____	Full names of all harvesters present in addition skipper) Name #1: _____
	Departure Time (24h format) _____		Did the skipper participate in harvesting? <input type="checkbox"/> Y <input type="checkbox"/> N		Name #2: _____
	Harvest area (Kyu, Clay, Bark)	Specific harvest location, name or #	If no, will harvest be pooled for skipper? <input type="checkbox"/> Y <input type="checkbox"/> N		Name #3: _____
	Weather, tide, sea state		Lat/Long		Name #4: _____
			Landing Location	Landing Date	Landing Time (24hr)

**SECTION E: TO BE COMPLETED BY OBSERVER**

Harvester name	Bag ID#	Bag Weight at harvest	Bag Weight at landing	Discard (per harvester, not per bag, to be filled out dockside)					
				Mussel/Acorn Weight (g)	Discarded Goose Barnacles		Discarded Goose Barnacles		Discarded Goose Barnacles
				Adult #	Adult wt	Juv #	Juv wt	Bab #	Bab wt

Observers comment about harvesting practices:



Tag. No:

Harvester Name:

Harvest Date:

Harvest Location:

Way point #:

## Appendix 5 Harvest Site lists / Harvest Area Maps

### 5.1 Barkley Sound

Location ID	Stat Area	Sub area	Rock Name	Latitude	Longitude
B-001	23	11	Jenny Reef	48.9166	-125.5251
B-002	23	11	Four rocks	48.9205	-125.5116
B-003	123	3	Rock NE of Janson Island	48.9028	-125.5047
B-004	123	3	Starlight	48.8811	-125.4842
B-005	23	11	Beg Island	49.91728	-125.49896
B-006ind1	23	11	Big Food Islets Bed #1 Index	48.9191	-125.478
B-006ind2	23	11	Big Food Islets Bed #2 Index	48.9184	-125.4765
B-007	123	3	Mara Rk	48.875	-125.4793
B-008	123	3	Heddington North	48.8913	-125.4733
B-009	23	11	Great bear	48.8915	-125.4544
B-010	23	11	Sykes Reef N	48.9	-125.469
B-011	23	11	Isl SW of Chow Island	48.9032	-125.474
B-012	23	11	Chow Island South end	48.9056	-125.4676
B-013	23	11	Alley Rock E	48.8987	-125.4324
B-014	23	11	Page Island	48.9314	-125.3844
B-015	23	11	Salmon Beach	48.9502	-125.4281
B-016	23	11	Pinder Rock W	48.9254	-125.3821
B-017	123	5	Little Beach Rocks	48.9256	-125.549
B-018	123	5	Amphitrite Point Rocks	48.9224	-125.5453
B-019	123	5	Big Beach Rocks	48.9339	-125.5541
B-020ind	23	11	George Fraser SE North Index	48.9076	-125.5013
B-021	23	11	Food Island Small	48.9184	-125.4798
B-022	23	11	West George Fraser Rocks	48.9037	-125.5186
B-023	123	3	Chow Island inlet	48.9087	-125.4717
B-024	23	11	NE of Janson	48.9027	-125.5086
B-025	123	3	Heddington South	48.8886	-125.4718
B-027	23	11	Ucluth Peninsula Rocks	48.9354	-125.5698
B-028	123	5	Amphitrite Point	48.9205	-125.544
B-029	123	5	Francis Island Point	48.9212	-125.5233
B-030	23	11	George Fraser North Rocks 1	48.9148	-125.5166
B-031	23	11	George Fraser North Rocks 2	48.913	-125.517
B-032	23	11	George Fraser North Rocks 3	48.9114	-125.5166
B-033	23	11	George Fraser North Island W	48.9097	-125.5156
B-034	23	11	George Fraser South Island NW	48.9079	-125.5181

B-035	123	3	Humphries Reef	48.8986	-125.5119
B-036	123	3	Rock SE of Janson Island	48.9009	-125.5022
B-037	123	3	George Fraser South Island SE	48.9036	-125.5122
B-038	123	3	George Fraser South Island E	48.9061	-125.5107
B-039	123	3	George Fraser North Island E	48.9091	-125.5093
B-040	23	11	George Fraser North Rocks 4	48.9121	-125.5122
B-041	23	11	Sykes Reef mid	48.8974	-125.4687
B-042	23	11	Sykes Reef S	48.8965	-125.4674
B-043	23	11	Alley Rock W	48.8979	-125.4342
B-044	23	11	North of Starlight Rk	48.88352	-125.49069
B-045	123	3	Forbes Island	48.9488	-125.412
B-046	23	9	Curwen Island	48.9462	-125.361
B-047	23	11	Bryant Islands	48.9523	-125.3672
B-048	23	11	Castle Islet	48.9541	-125.3739
B-049	23	11	Newcombe Channel - Mainland 1	48.9201	-125.488
B-050	23	11	Newcombe Channel - Mainland 2	48.9243	-125.4732
B-051	23	11	Newcombe Channel - Mainland 3	48.9255	-125.4696
B-052	23	11	Mainland north of Beg Island	48.9207	-125.5033
B-053	23	11	Inner Mouth East Ucluelet Harbour	48.9282	-125.5203
B-054	23	11	Outer Mouth East Ucluelet Harbour	48.9258	-125.5164
B-055	23	11	Pinder Rk East	48.9261	-125.3769
B-056	23	11	Sykes East	48.90007	-125.46608
B-057	23	11	Thank you Rock	48.905	-125.4693
B-058	23	11	W Islet Chow	48.9064	-125.4723
B-059	23	11	NW Chow Island	48.907	-125.4731
B-060	23	11	Inside Beg	48.9187	-125.5043
B-062	23	11	Food Island Big West side	48.91861	-125.47732
B-062	23	11	Food Island Big West side	48.91861	-125.47732
B-068	23	11	David Islands South Side	48.57.81	125.23.12
B064	23	11	Salmon Beach Rocks	48.57.06	125.25.51
B065	23	11	Curwen Islet	48.57.00	125.10.35
B070-702	23	11	Bryant Islands	48.57.11	125.10.80

## 5.2 Clayoquot Sound

Location Code	Stat Area	Sub area	Rock Name	Latitude	Longitude
C-001	124	3	Mkay Rock SE	49.1238	-125.9669
C-002	124	3	Mkay West	49.1242	-125.9733
C-003	24	8	Jensen rf	49.1333	-125.9607
C-005	24	8	Wick NW	49.1451	-125.9523
C-006	24	8	Toilet Bowl	49.1414	-125.9535
C-007	24	8	Wick SW Rk	49.1329	-125.9471
C-008	24	8	Felice	49.1511	-125.9218
C-009	24	8	Middle beach	49.1328	-125.9111
C-010	24	8	Chesterman's	49.1165	-125.9005
C-011	24	8	Mckenzie beach	49.1264	-125.9109
C-012	124	3	Frank Isl N	49.1099	-125.903
C-013	24	8	Lennard SE corner	49.11	-125.9192
C-014	124	3	Peanut rock	49.1074	-125.9226
C-015	124	3	Lennard Lagoon outside	49.1094	-125.9299
C-016	124	3	Lennard Lagoon Inside E	49.1107	-125.9282
C-017ind	24	8	Lennard Nw Index	49.1126	-125.9261
C-018	24	8	Tonquin Island	49.1214	-125.9267
C-019	24	8	Tonquin Rf	49.1238	-125.9251
C-020ind	24	8	Thorn Reef index	49.1256	-125.9272
C-022	124	3	Knob rock SE	49.1128	-125.9378
C-023	124	3	Knob rock NW	49.1133	-125.9395
C-024	124	3	Surprise Reef	49.1182	-125.9484
C-045	24	8	Lennard E Islet	49.1096	-125.8963
C-046	24	8	Stubbs	49.1528	-125.9031
C-047	124	3	Frank Isl S	49.1073	-125.951
C-048	124	3	Frank Rk	49.1085	-125.906
C-049	24	8	Wick W	49.1385	-126.104
C-050	124	3	Wick Resort Rk	49.1232	-126.1002
C-051	24	6	Bartlett Rk NW 1	49.2264	-126.0991
C-052	24	6	Bartlett Rk NW 2	49.2277	-126.1018
C-053	24	6	Bartlett Rk NW 3	49.2249	-126.0947
C-054	24	6	Bartlett Rk W 1	49.2212	-126.0875

C-055	24	6	Bartlett Rk W 2	49.2166	-126.098
C-056	24	6	Bartlett Rk W 3	49.2163	-126.0824
C-057	24	6	Hagen Rf W	49.208	-126.0757
C-058	24	6	Hagen Rf E	49.209	-126.0768
C-059	24	6	Lawrence It	49.2118	-126.0807
C-060	24	6	Edwin Rf	49.216	-126.0671
C-061	24	6	Bartlett Island S	49.217	-126.0696
C-062	24	6	Whaler It Mid	49.2263	-126.0653
C-063	24	6	Whaler It N	49.229	-126.0526
C-064	24	6	Whaler It S	49.2218	-126.0518
C-065	24	6	Shot S	49.2311	-126.0591
C-066	24	6	Shot N	49.2336	-126.0488
C-067	24	6	Shag	49.2294	-126.0182
C-068	24	6	Leeke	49.2257	-126.0168
C-069	24	6	Catface N	49.2451	-126.0088
C-070	24	6	Catface Mid	49.2421	-126.0164
C-071	24	6	Catface S	49.2399	-125.9236
C-072	24	6	Monks	49.2324	-125.9064
C-073	24	8	Tonquin Island East	49.07.32	125.55.36
C-074	124	3	McKenzie inner	49.07.82	125.54.38
C-004ctrl	24	8	Father Charles Rock	Parks	Closure
C-076	124	3	Adrian's Anchorage	Parks	Closure
C-077	124	3	Ahous Point	Parks	Closure
C-077	124	3	Blunden South Rock	Parks	Closure
C-080	124	3	Foam Reef	Parks	Closure
C-081	124	3	Indian Rock	Parks	Closure
C-082	124	3	La Croix Middle Back End	Parks	Closure
C-083	124	3	La Croix Middle Inside	Parks	Closure
C-084	124	3	La Croix N 1 (South End)	Parks	Closure
C-085	124	3	La Croix North 2	Parks	Closure
C-086	124	3	La Croix North 3	Parks	Closure
C-087	124	3	La Croix Protected Rock	Parks	Closure
C-088	124	3	La Croix SE 1	Parks	Closure
C-089	124	3	Medallion	Parks	Closure
C-090	124	3	Near S of Medallion	Parks	Closure
C-091	124	3	Orca Alley	Parks	Closure
C-092	124	3	Snake Pit Rock	Parks	Closure

C-027ctrl	124	3	Bartlett Rk NW 3	Parks	Closure
C-041	124	6	Tibbs It	Parks	Closure

### 5.3 *Kyuquot Sound*

Location Code	Stat Area	Sub area	Rock Name	Latitude	Longitude
K-006	26	1	Evil rock	49.8978	-127.2223
K-007	26	1	McQuarrie Island	49.9019	-127.224
K-008	26	1	Ten Man Rock	49.9191	-127.233
K-009	26	1	Grassy south end spine	49.915	-127.2402
K-010	26	1	Driver Island	49.9288	-127.2492
K-011	26	1	Nipple Rock East rock	49.9516	-127.2614
K-012	26	1	Nipple Rock Dome	49.9492	-127.2628
K-013	26	1	Rock west of Volcanic Island	49.9403	-127.2542
K-014ind	26	1	Roll Boat Index	49.9648	-127.2948
K-015	26	1	Munsie South East	49.9606	-127.301
K-016	26	1	Munsie West	49.9588	-127.3162
K-018	26	1	Moos Rock	49.9731	-127.3249
K-019	26	1	Thornton Island 1	49.9661	-127.3476
K-020	26	6	Union Island North rocks	50.0088	-127.3271
K-021	26	6	Union Island west rocks	49.9993	-127.322
K-022	26	6	Raccoon Point	49.986	-127.3022
K-023	26	1	Mission Group	49.9983	-127.365
K-024	26	1	Spring South	49.9928	-127.4192
K-026	26	1	McQuarrie North	49.9027	-127.2275
K-027	26	1	Nip SISO	49.9518	-127.2624
K-028	26	6	Srvey Rk S	50.007	-127.3565
K-029	26	1	W of Vol	49.9403	-127.2709
K-030	26	1	WF WF Volcanic	49.9369	-127.2752
K-031	26	1	E Ent Rk	49.9428	-127.2782
K-032	26	1	Grss SRk	49.9197	-127.2374
K-033	26	1	Clark Island	49.9218	-127.2393
K-034	26	1	Favourite entrance	49.993	-127.3986
K-035	26	1	Grassy midle West	49.9197	-127.2477
K-036	26	1	Grassy West	49.9215	-127.2536
K-037	26	1	Kate Rock South	49.9808	-127.3134
K-038	26	6	Kyuquot Bay South	49.9777	-127.2915
K-039	26	1	Minx 1	49.9977	-127.37
K-040	26	1	Minx 2	49.997	-127.3774
K-041	26	1	minx 3	49.9985	-127.378
K-042	26	1	minx 4	50.0027	-127.3717

K-043	26	1	minx 5	50.0019	-127.3737
K-044	26	1	minx 6	49.9969	-127.3824
K-045	26	1	minx 7	49.9934	-127.3882
K-046	26	6	minx 8	50.009	-127.366
K-047	26	1	Moos main E	49.9735	-127.32
K-048	26	1	Moose Islet West	49.9774	-127.3154
K-049	26	1	Mquarry NE Rks	49.904	-127.2244
K-050	26	1	MQuarry S rock	49.8987	-127.224
K-051	26	1	Mquarry West	49.9014	-127.2277
K-052	26	1	Munsie middle	49.9616	-127.3231
K-053	26	1	munsie North	49.965	-127.3255
K-054	26	1	Munsie North East	49.9633	-127.3044
K-055	26	1	N of Thornton	49.9724	-127.3467
K-056	26	6	Nicolye	50.0101	-127.3546
K-057	26	6	S Amos 1	50.0097	-127.3434
K-058	26	1	S of Thornton	49.957	-127.3391
K-059	26	1	Thornton East	49.9643	-127.3432
K-060	26	1	Thornton S	49.9621	-127.3454
K-061	26	6	Union NW Islet	50.0092	-127.3321
K-062	26	1	Volcanic Is South	49.9411	-127.2621
K-063	26	1	Volcanic Is w	49.9433	-127.2613
K-064	26	1	West Spring Islet 1	50.0001	-127.4308
K-065	26	1	West Spring Islet 2	50.0027	-127.436
K-066 ind	26	6	Mission Index	50.00833	-127.35889
K-067	26	1	McQuarrie E RK	49.9048	-127.2188
K-068	26	1	W of Spring	49.9943	-127.4314

#### ***5.4 Note to reader regarding maps.***

(To keep the size of this file manageable, maps indicating the above are kept in a separate appendix. Please see 2005 Goosebarnacle Fishery Maps)